



Service Manual

Model: JR200

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GENERAL SPECIFICATIONS

● DESCRIPTION

AC operated LW-MW-VHF STEREO RECEIVER
DOUBLE CASSETTE RECORDER/DISC

● TAPE SECTION

Tape drive : Capstan drive
Tape speed : 4.75cm/sec.
Play back : 4 track stereo
Recording : AC bias
Erasing : AC erasure
Motor : Electrically governed motor DC 12V
Eject : Soft gear eject
Auto-stop : Mechanical auto-stop

● RADIO SECTION

LW : 145-265KHz
MW : 525-1620 KHz
VHF : 87.4-10MHz

● CONTROLS

Function selector : Rotary
LW/MW/VHF/DISC/TAPE
AFC FREQ SHIFT/

● EXTERNAL TERMINAL

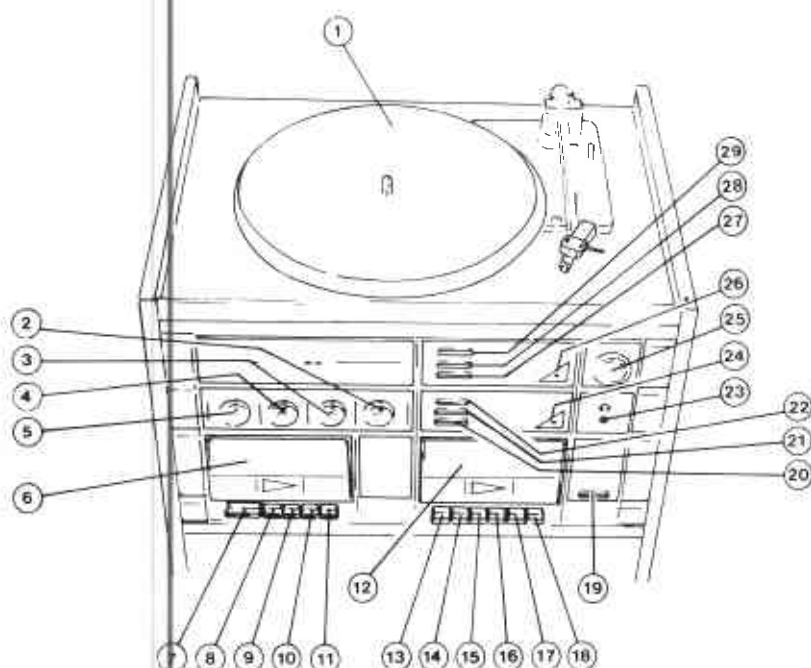
Head phone jack : 3.5mm dia. (BOTH CHANNELS)
FM ANT : 75 ohm co-axial
Speaker : DIN 2 pin

● POWER SUPPLY : AC 240V 50Hz

● CHASSIS & CIRCUIT

AM antenna : Ferrite Bar antenna
FM antenna : 75 ohm ANT
AFC : Built-in
ALC : Built-in
Tape functions
TAPE A : PLAY/REW/F.F./STOP eject
/PAUSE piano key type
TAPE B : REC/PLAY/REW/F.F./STOP
EJECT/PAUSE piano key type

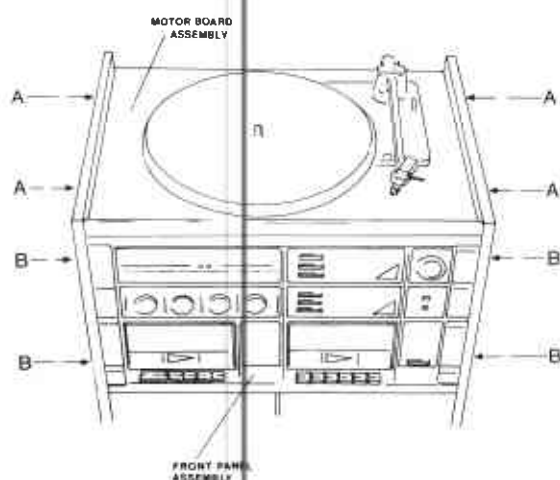
CONTROLS



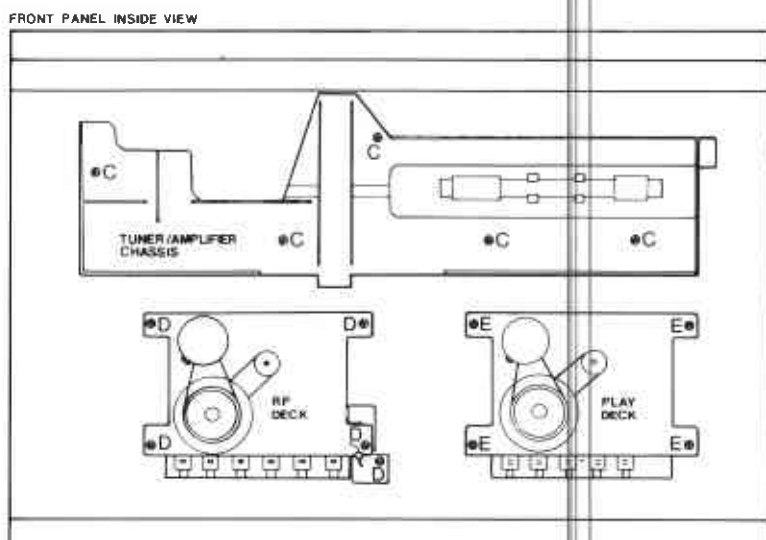
1. Record Player Turn Table
2. Volume Control
3. Balance Control
4. Treble Control
5. Bass Control
6. Tape 1 Cassette Compartment
7. Tape 1 Play Key
8. Tape 1 Rewind Key
9. Tape 1 Fast Forward Key
10. Tape 1 Stop/Eject Key
11. Tape 1 Pause Key
12. Tape 2 Cassette Compartment
13. Tape 2 Record Key
14. Tape 2 Play Key
15. Tape 2 Rewind Key
16. Tape 2 Fast Forward Key
17. Tape 2 Stop/Eject Key
18. Tape 2 Pause Key
19. Power ON/OFF Button
20. AFC/Freq. Shift Button
21. Tape Button
22. Disc Button
23. Stereo Headphone Socket
24. Power 'ON' Indicator
25. Tuning Control
26. FM Stereo Indicator
27. FM Button
28. MW Button
29. LW Button

DISMANTLING PROCEDURE

DIAG. 1



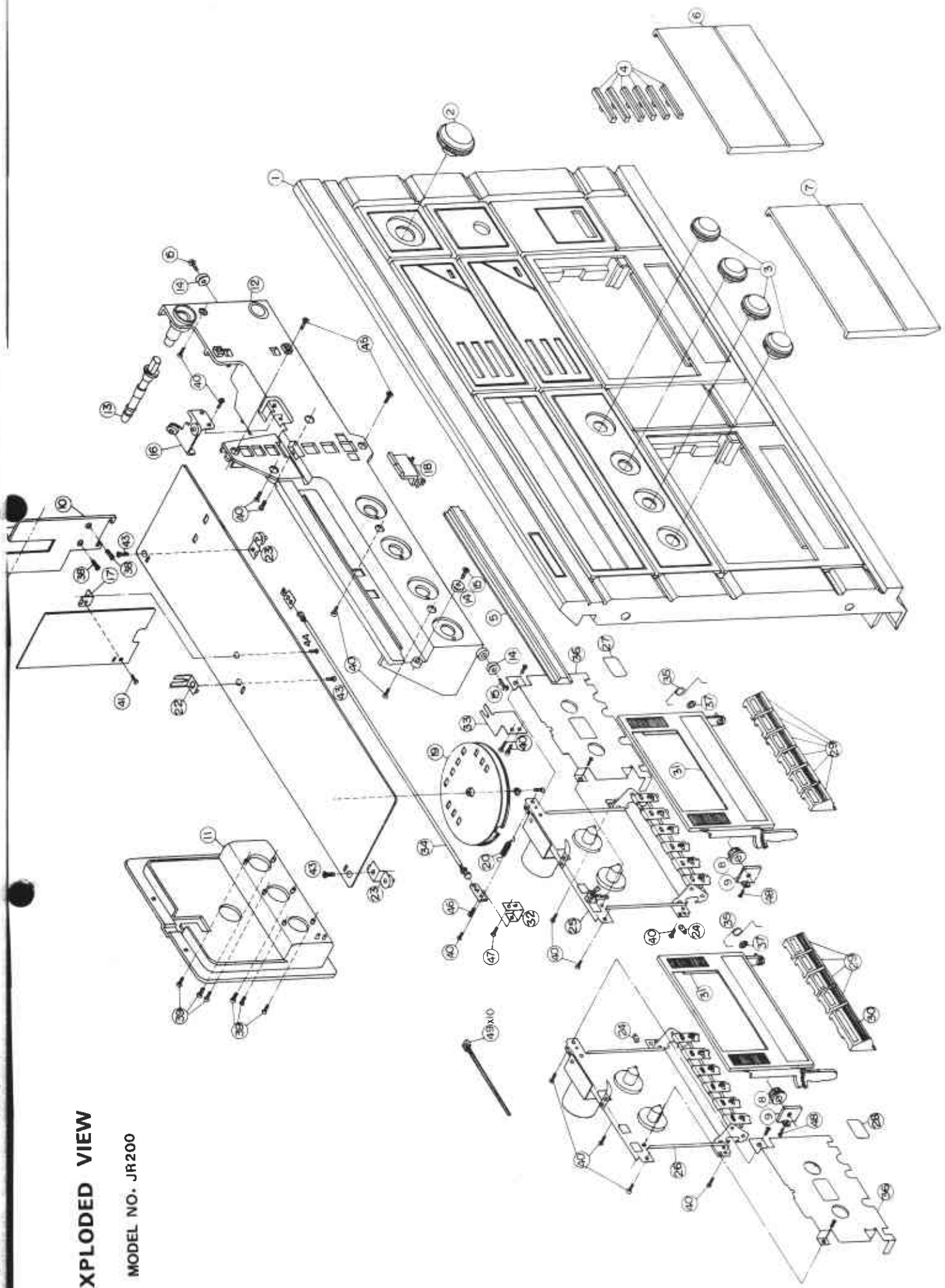
DIAG. 2



1. FRONT PANEL ASSEMBLY:— Remove four screws marked 'B' in the above diagram 1.
2. MOTORBOARD ASSEMBLY:— Remove four screws marked 'A' in the above diagram 1.
3. TUNER AMPLIFIER CHASSIS:— In order to remove the chassis it is first necessary to remove the rotary control knobs. If the knobs seem tight to remove, then insert a piece of nylon string looped behind the knobs and pull. Remove screws marked 'C' on diagram 2 above.
4. PLAYBACK DECK:— Remove screws 'E' (diagram 2).
5. RECORD/PLAYBACK DECK:— Remove screws 'D' (diagram 2).

EXPLODED VIEW

MODEL NO. JR200



TUNER ALIGNMENT PROCEDURE

For correct alignment the following equipment is necessary.

1. AM signal generator
2. FM signal generator (VHF)
3. AM, FM I-F sweep generator
4. Audio generator
5. MPX stereo generator
6. VTVM
7. Oscilloscope
8. Distortion meter
9. Frequency counter

GENERAL PREPARATION

1. Set function switch to band being aligned.
2. Connect ground of signal source and output indicator to chassis ground unless otherwise specified. Ground connection should be kept close to signal connection.
3. Signal input should be kept as low as possible to avoid AGC and limiting action.
4. Standard modulation is 400Hz at 30% amplitude for MW, LW at 22.5KHz deviation. For FM 1000Hz at 33.7KHz (Land R) 19KHz 6.7KHz deviation for MPX.
5. FM antenna input impedance is 75ohm.

1. Tuner Section (a) MW/LW IF alignment

step	Connect Signal Source To —	Connect Output Indicator To —	Set Signal To —	Set Tuning Dial To —	Adjust —	Adjust For
1.	IF sweep generator connected to TP2	AM IF sweep generator connected to IC 3 pin 4 or 5 (AM FM output)	465KHz Insert Markers	High end (Tuning gang open)	L7	Maximum
2.	Repeat step 1 until no further increase in gain is evident.					

(b) VHF IF alignment

step	Connect Signal Source To —	Connect Output Indicator To —	Set Signal To —	Set Tuning Dial To —	Adjust —	Adjust For
1.	FM I-F sweep generator (output connected to TP-1 & TP-1) through 0.02uF ceramic capacitor	FM I-F sweep generator (input) connected to VHF (IC3 PIN 4 or 5)	Sweep centered at 10.7MHz (unmodulated) 10.6 10.7, 10.8MHz Markers	Tuning gang open	L2	Max. gain with symmetrical curve
2.						
3.						
4.					L6	Symmetrical S curve
5.	Repeat steps 1 through 4 until no further increase in gain is evident.					

(c) MW/LW Range Alignment

step	Connect Signal Source To —	Connect Output Indicator To —	Set signal Signal To —	Set Tuning Dial To —	Adjust —	Adjust For
1.	MW/LW signal generator connected with standard radiation loop antenna	VTVM Connected across 4 ohm resistor through Ext. sp. jack	MW 525KHz (Modulated)	Minimum Frequency	L2	Max. output
2.				Maximum Frequency	TC-3 (On Gang)	Max. output
3.				Repeat steps 1 & 2 until tuning range covers accurately from 525KHz to 1620KHz		
4.			LW 265KHz (Modulated)	Maximum Frequency	TC-5	Max. output
5.				Minimum Frequency		Range Check

MW/LW RF alignment

step	Connect Signal Source To —	Connect Output Indicator To —		Set Signal To —	Set Tuning Dial To —	Adjust	Adjust For —
6.	AM Signal generator connected with standard radiation loop	VTVM Connected across 4 ohm resistor through Ext sp. jack	LW	170KHz (Modulated)	Tune to — Signal	MW ANT COIL L5	Max. output
7.				245KHz (Modulated)	Tune to — Signal		Max. sens Check
8.				Repeat steps 6 & 7 until no further improvement is possible			
9.			MW	600KHz (Modulated)	Tune to — Signal	AM ant Coil L5	Max. output
10.				1400KHz (Modulated)	Tune to Signal	TC-3	Max. output
11.				Repeat steps 9 & 10 until no further improvement is possible.			

(d) FM RF alignment

step	Connect Signal Source To —	Connect Output Indicator To —	Set Signal To —	Set Tuning Dial To —	Adjust —	Adjust For —
1.	FM signal generator connected to FM ant	VTVM connected across 4 ohm resistor through Ext. sp. jack	87.4MHz (Modulated)	Minimum Frequency	L3 (Stretch or squeeze)	Max. output
2.			108MHz (Modulated)	Maximum Frequency	TC1 (on gang)	
3.			Repeat steps 1 & 2 until tuning range covers accurately from 87.4MHz to 108MHz.			
4.			90MHz (Modulated)	Tune to Signal	L1 (Stretch or squeeze)	Max. output
5.			106MHz (Modulated)	Tune to Signal	TC-1 (ON gang)	
6.			Repeat steps 4 & 5 until no further gain can be obtained.			

(e) PMX. P.L.L.OSC FREQUENCY alignment

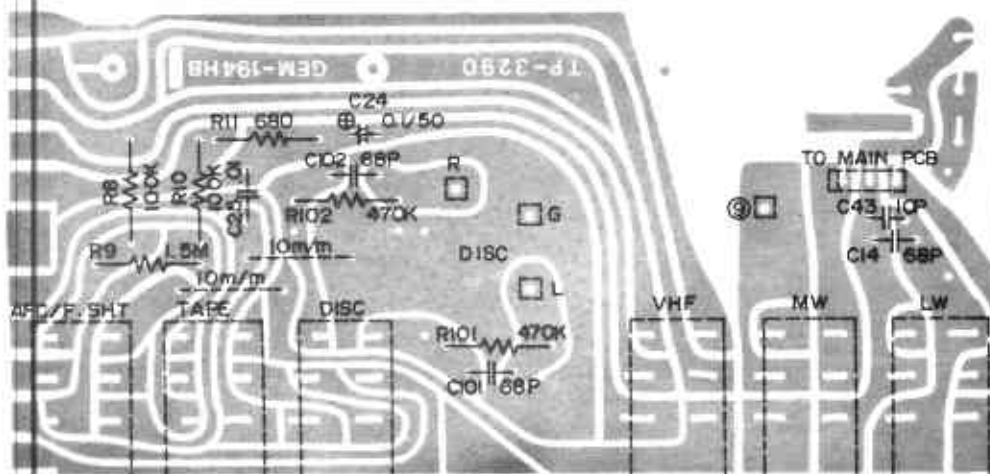
- Frequency counter connected to TP-3
- Set function switch to FM position.
- Set tuning dial to no signal frequency
- Adjust R14S (10K ohm) for 19.0KHz.

Controls vs control MAX

step	Connect Signal Source To —	Connect Output Indicator To —	Adjust —	Adjust For —
1.	Head Azimuth adjust (10 KHz test tape)	VTVM Connected across 8ohm Resistor through ext sp. jack	R/P head (TAPE B) PLAY head (TAPE "A")	Both L/R MAX. output and in phase
2.	Rec. bias adjust (Push down rec. level)	VTVM connected to TP3 and ground	L-203	for min. 60KHz leakage signal output.
3.	Motor speed adjust (3KHz wow flutter test tape)	Digital counter and VTVM Connected across 4ohm through ext sp jack	VR on motor	Read about 3KHz ON digital counter

A detailed schematic diagram titled "TUNER DRIVE CORD ARRANGEMENT". It illustrates the mechanical linkage between a tuning dial and a tuner shaft. The dial, labeled "1", features a "SPRING" and a central pivot point "4". A "DIAL POINTER" (5) is attached to the dial. A cord (2) is anchored to a "PULLEY" (2) on the left, passes over a "PULLEY" (3) at the bottom, and then over a "PULLEY" (6) in the middle. The cord continues to a "PULLEY" (7) and then to a "PULLEY" (11) at the top. From pulley 11, the cord splits: one branch goes to a "PULLEY" (10) and then to a "PULLEY" (9) at the top right, which is connected to the "TUN. SHAFT". The other branch from pulley 11 goes to a "PULLEY" (8) on the "TUN. SHAFT". The diagram is numbered 1 through 11, with labels for "PULLEY", "DIAL POINTER", "SPRING", and "TUN. SHAFT".

TOP VIEW

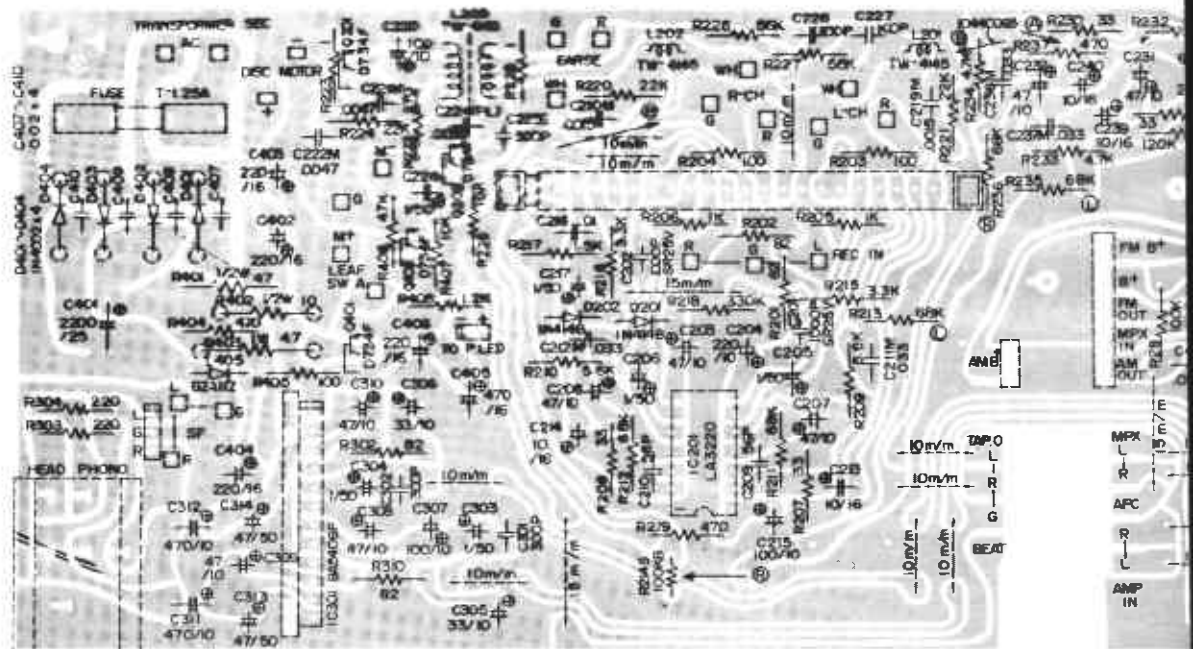
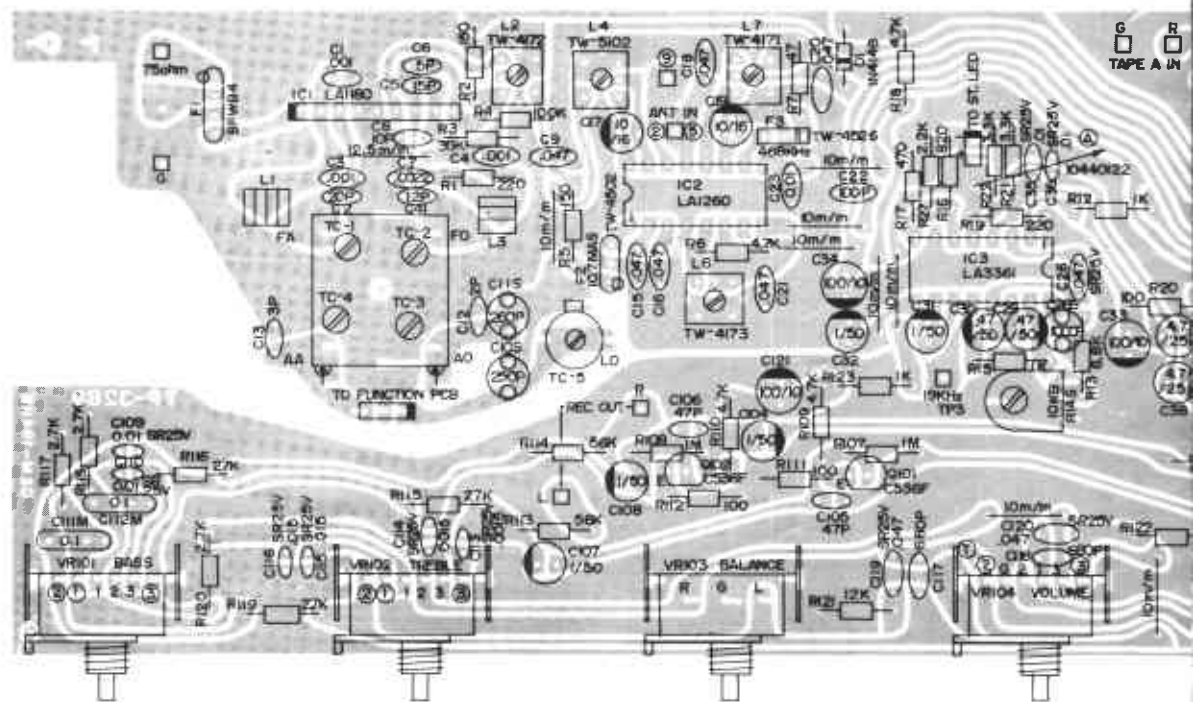


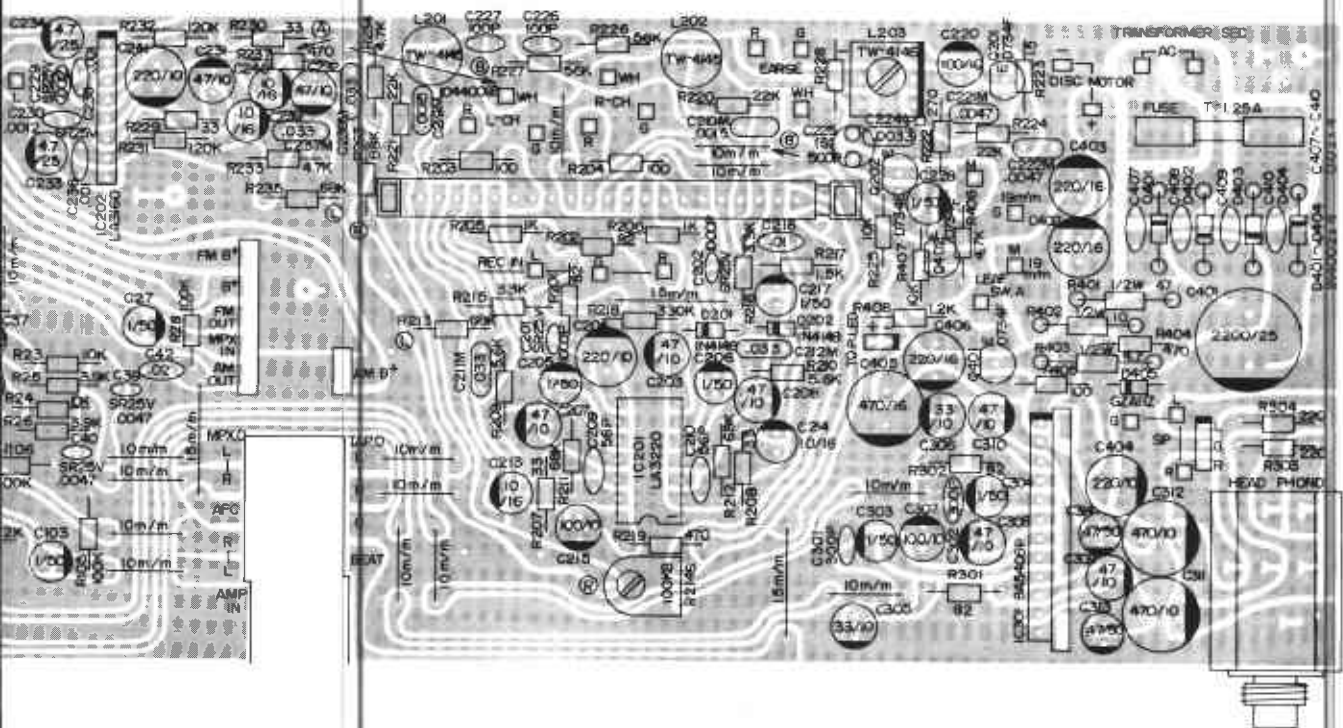
MAIN P.C. BOARD ASS'Y

MODEL NO. JR200

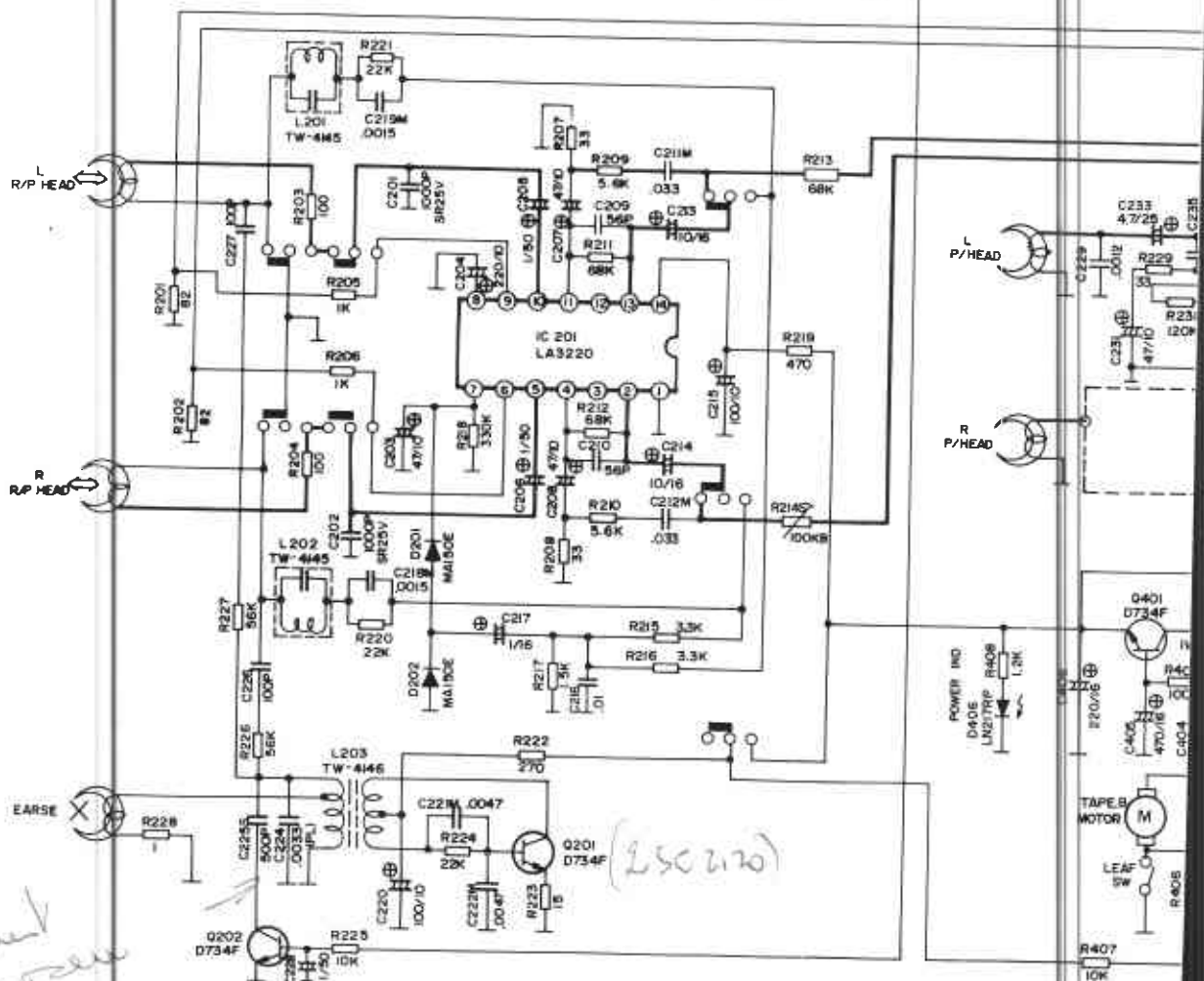
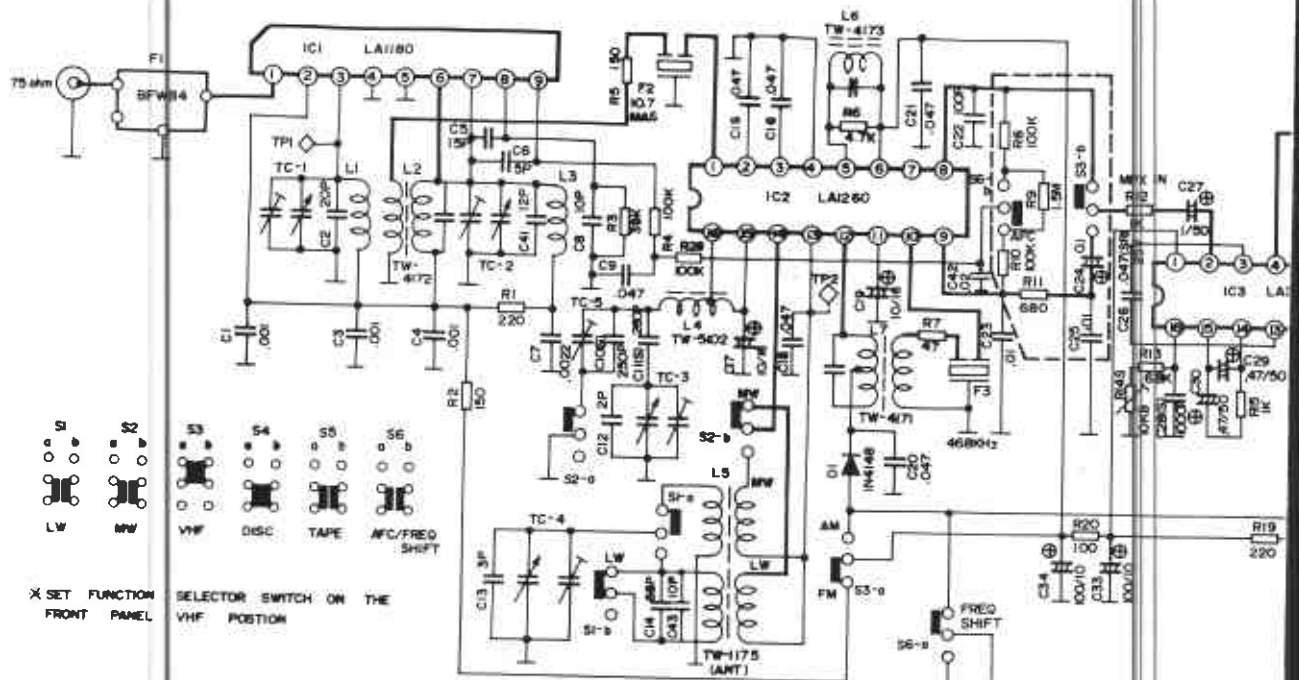
TOP VIEW

BOTTOM VIEW





CIRCUIT DIAGRAM



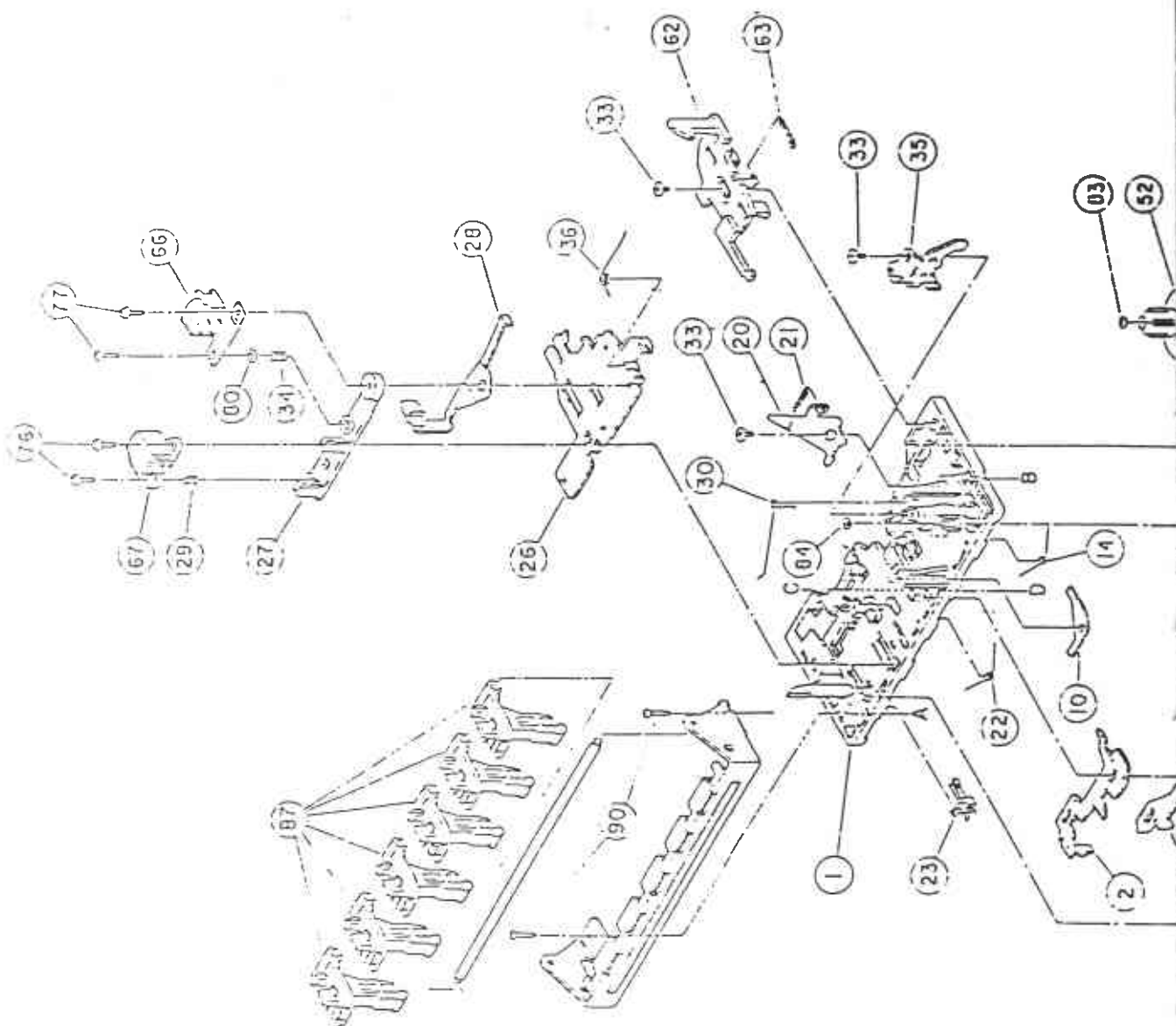
TAPE MECHANISMS SELECTED PARTS LIST

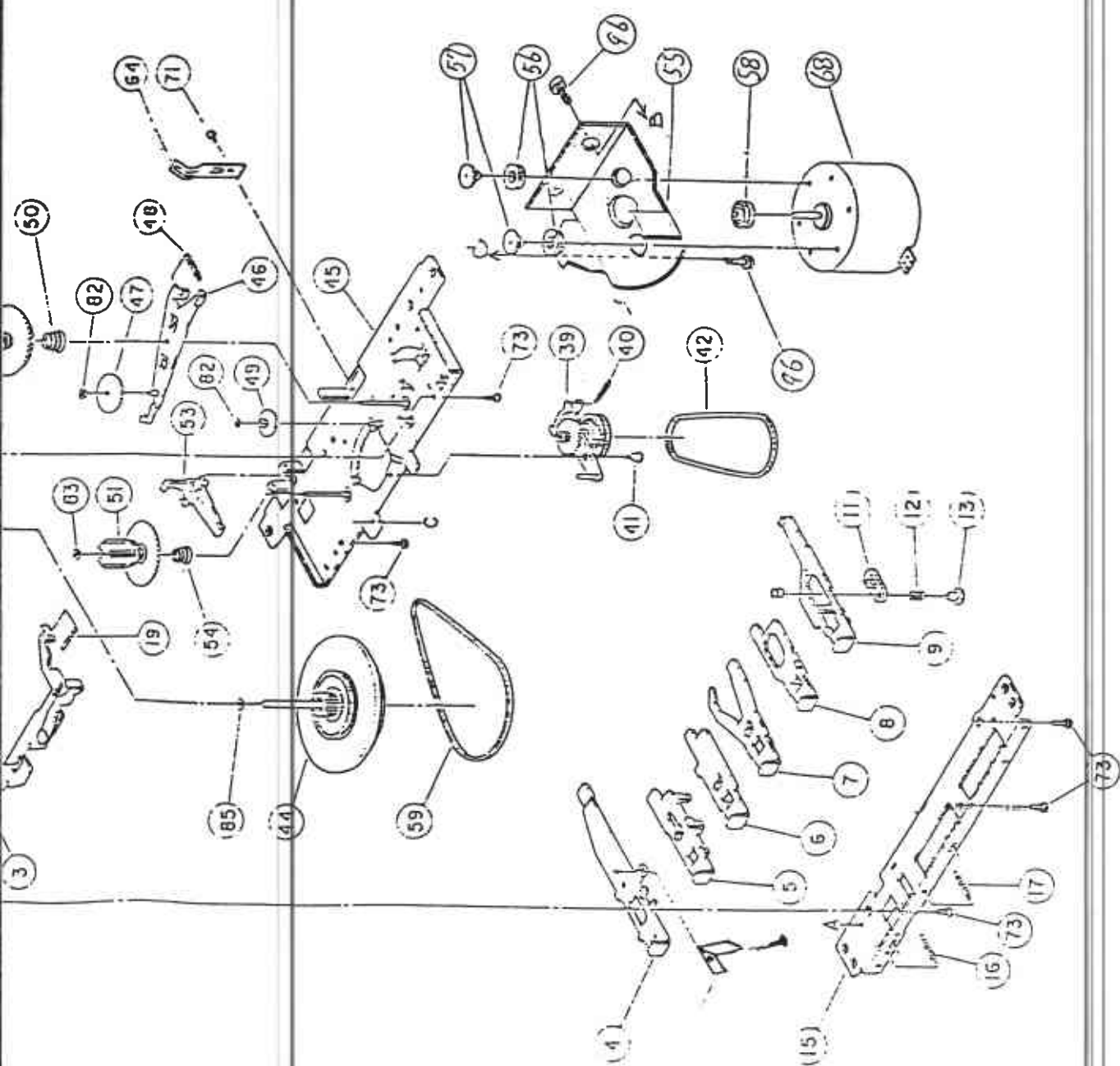
NOTE: The following parts as shown on the tape mechanisms exploded view are not found on playback deck i.e. Tape 2 mechanism. In all other respects the two mechanisms are identical.

Item No.	Description
4	Record Button Lever
29	E.H. Spring
53	Record Safety Lever
67	Erase Head

SELECTED PARTS LIST

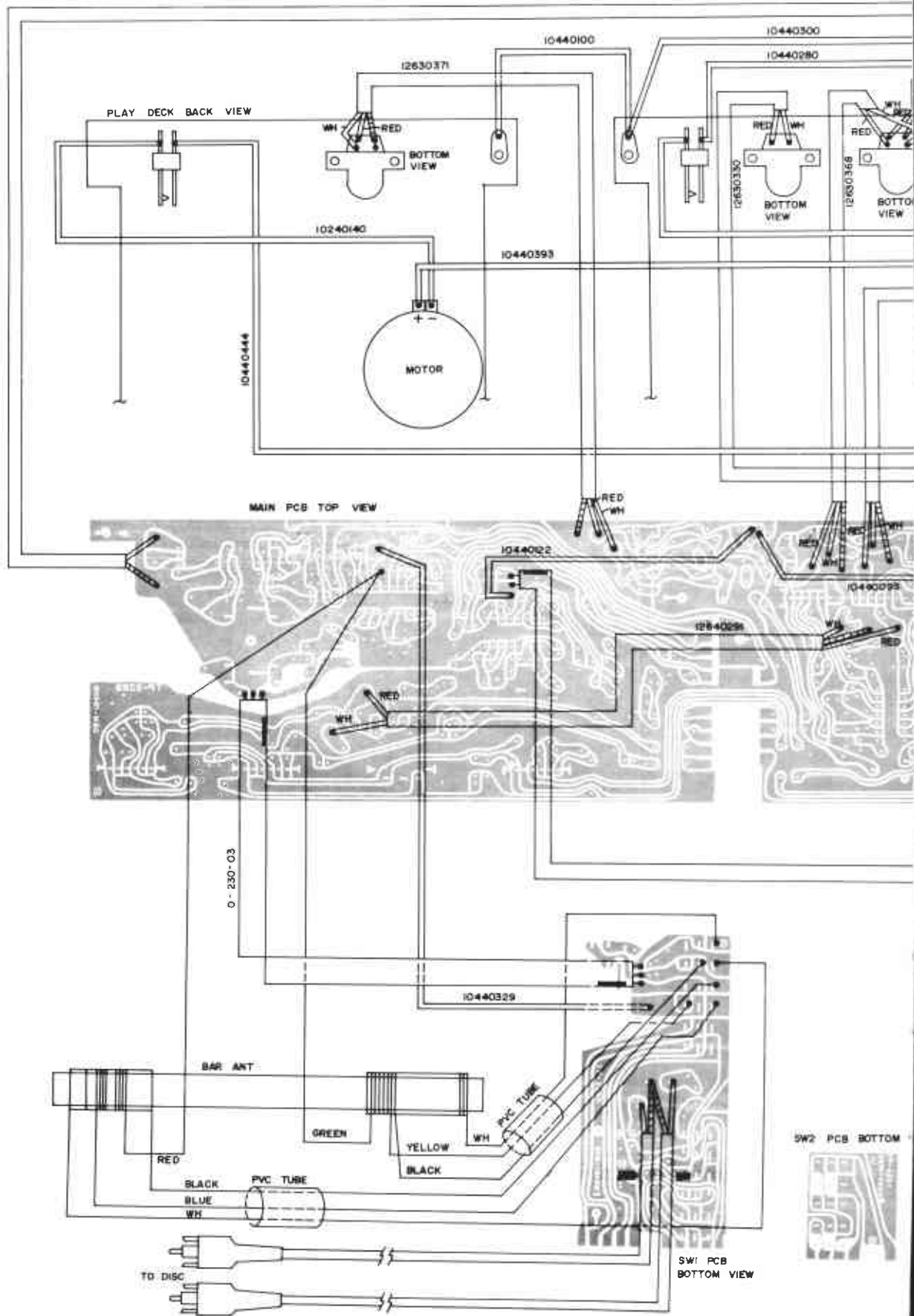
Item No.	Description
12	Pause Lever Spring
20	Auto Lever
21	Auto Lever Spring
23	Leaf Switch
28	Sensing Plate Assy.
35	Pinch Roller Assy.
36	Pinch Roller Spring
42	RF Belt
47	Take up Roller Gear
59	Main Belt
66	Record Playback Head
67	Erase Head
68	Motor



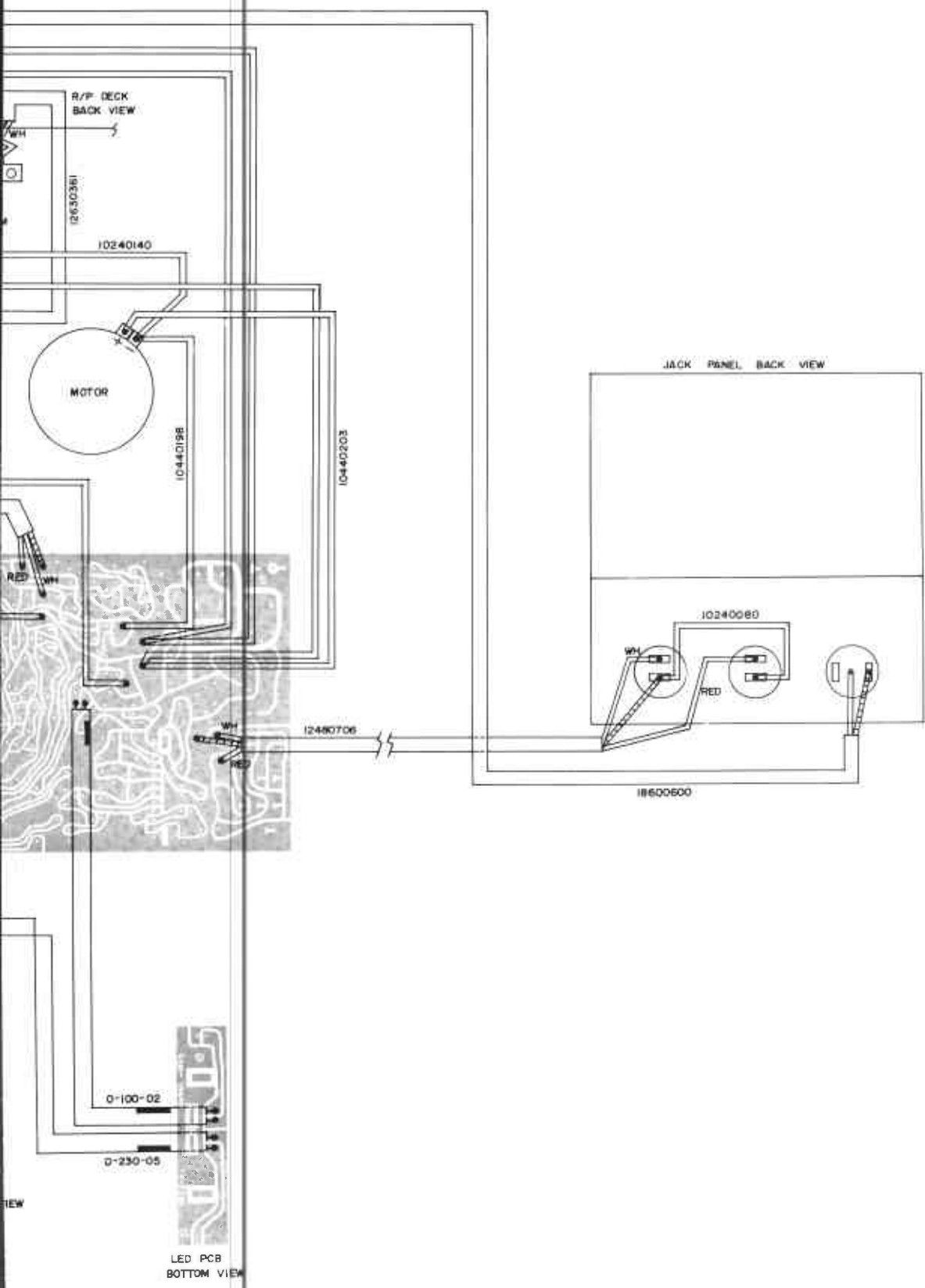


TAPE MECHANISMS. EXPLODED VIEW

WIRING DIAGRA



AM MODEL NO. JR200



CHASSIS SELECTED PARTS LIST

SEMICONDUCTORS

Part No	Description	Reference
TX4153	IC LA1180	IC1
TX4123	IC LA1260	IC2
TX4066	IC LA3361	IC3
TX4118	IC LA3220	IC201
TX4068	IC LA3160	IC202
TX4179	IC BA5408	IC301
TX1107	TRANSISTOR 2SC536F	Q101, Q102
TX1140	TRANSISTOR 2SD734F	Q201, Q202, Q401, Q402

DIODES

TX2055	IN4148	D1, D202
TX2059	IN4002	D401, D402, D403, D404
TX2081	GZAIIZ	D405
TX4087	LED LN217RP	D2, D406

FILTERS & COILS

TW4522	FM ANT. FILTER BFWB4	F1
TW1176	FM RF COIL	L1
TW4172	FM IFT	L2
TW1177	FM OSC. COIL	L3
TW5102	AM OSC. COIL	L4
TW1175	MW/LW BAR ANT. COIL	L5
TW4173	FM IFT	L6
TW4171	AM IFT	L7
TW4145	TRAP COIL 60KHz	L201, L202
TW4146	BIAS COIL 60KHz	L202

RESISTORS

TR9501	10R 0.5W	R402, R401
TR8503	4R7 0.5W	R403

CAPACITORS

TC2031	260pF 50V POLYSTYRENE	C11
TC2032	250pF 50V POLYSTYRENE	C10
TC2023	1000pF 50V POLYSTYRENE	C28
TC2021	500pF 50V POLYSTYRENE	C225
TC2508	3n3F 100V POLYSTYRENE	C224
TC7206	4μ 7 25V ELECTROLYTIC	C37, C38, C233, C234
TC7010	100μ 10V ELECTROLYTIC	C33, C34, C121, C215, C220
TC7111	220μ 16V ELECTROLYTIC	C402, C404, C406
TC7217	2200μ 25V ELECTROLYTIC	C401
TC1036	POLY VARIABLE CAPACITOR	
TC0017	20pF TRIMMER	

PRESETS AND POTENTIOMETERS

TR1025	100K PRESET	R214S
TR1018	10K PRESET	R14S
TR2518	100KAX2 BASS/TREBLE CONTROLS	VR101, VR102
TR2519	100KW BALANCE CONTROL	VR103
TR2541	100KBX2 VOLUME CONTROL	VR104

GENERAL

TA7084	HEADPHONE JACK SOCKET	
TA7040	SPEAKER SOCKETS	
TA7048	FM AERIAL SOCKET	
TA5024	FUSE T 1.25 A	
TP0584	PULLEY	14
MA22040	PULLEY GUIDE ASSY.	16
TM3095	DIAL STRING	21
TF2936	REC. WIRE BRACKET	22
MA11327	R/P DECK ASSY. (TN218C-280)	25
MA11325	P. DECK ASSY. (TN215C - 281)	26
TF3138	RECORD SPRING	32

CHASSIS SELECTED PARTS LIST

Part No.	Description	Reference
TF1063	REC. WIRE GUIDE	33
MA11328	REC. WIRE ASSY.	34
TP1200	DAMPER GEAR	8
TP1199	GEAR SEAT	9
TP1155	TUNING SHAFT	13
T700	MAINS TRANSFORMER	
	BOXING AND FINISHING PARTS	
TP1291	FRONT PANEL	1
TP1259	TUNING KNOB	2
TP1260	FUNCTION KNOB	3
TP1261	PUSH BUTTON KNOB	4
TP1256	DIAL WINDOW	5
TP1263A	CASS. WINDOW (A)	6
TP1263B	CASS. WINDOW (B)	7
RACK		
NH101	LH SIDE PANEL	
NH102	RH SIDE PANEL	
NH103	MIDDLE SHELF	
NH104	BOTTOM PANEL	
	MOTOR BOARD (RECORD PLAYER)	
NH105	BACK COVER	
A520	RECORD PLAYER	
OTHERS		
M500	LID	
NH106	CASTORS	
NH107	SPEAKER BOX (MADE UP)	
NH108	RECORD HOOP	
P530	INSTRUCTION MANUAL	
PACKING MATERIALS		
NH109	TOP & BOTTOM CORRUGATED TRAY	
NH110	UNIT SLEEVE	